United Airlines (?UAL?) submits these comments in response to the June 30th final report of the technical working group that LightSquared and the United States Global Positioning System Industry Council co-chaired (?the Final Report?). The Federal Communications Commission invited the public to comment about the report in its public notice dated June 30th, DA 11-1133. United Airlines represents the FAA Operating Certificates of United Airlines and Continental Airlines and combined is the largest airline in the world.

The working group was created because of a condition in FCC Order and Authorization, DA 11-133, which the Commission issued on January 26th.. That condition requires submission of a final report that describes the working group?s analysis of the potential for overload interference that LightSquared?s proposed terrestrial network of base stations may cause to GPS devices. It also requires that the report describe steps to avoid that interference and recommendations to mitigate potential interference to those devices. In additional to participation in this workgroup, United has direct representation on the Advisory Board to the President?s Executive Committee for Position, Navigation, and Timing (PNT EXCOM) ? a group also opposing the current LightSquared application.

We appreciate the opportunity to respond to the working group?s report and the efforts of the group. Our views are as follows:

? United does not oppose the expansion of wireless broadband services but any such expansion cannot be permitted to interfere with existing or anticipated civil aviation GPS spectrum use.
? LightSquared?s application cannot be approved under any of the current proposals. The results of the working group?s examination of the operational implications of LightSquared?s application and RTCA?s related analysis both unequivocally demonstrate that LightSquared?s proposal will result in complete loss of aviation GPS use over entire regions of the United States.
? United Airlines, as a substantial GPS user should not be required to undergo technical, maintenance, and costs to mitigate any interference from the LightSquared proposed network, no matter any proposed solution.

There are claims that LightSquared does not transmit in the GPS Spectrum. While this is likely true, the power, proximity, and sheer volume of LightSquared terrestrial transmitters would cause blocking of the GPS signal at the receivers. This GPS interference issue can be described in a simple form: Imagine viewing a porch light from 12,000 miles away (power strength and distance being analogous to a GPS satellite transmitter). Then imagine a car headlight, slightly different in color (frequency) being shined directly into your forward vision. There would be almost no possibility of discriminating the distant and relatively dim porch light.

The main concern with this issue is the proven and documented US-wide GPS interference. United Airlines operates a fleet of 700+ aircraft, the majority of which have multiple GPS-based systems. We

have an active campaign to equip the entire fleet with GPS systems by 2012. GPS is the cornerstone technology for most of the FAA?s airspace transition to future operations ? known as NextGen. Specifically, GPS is used by United Airlines to serve the public transportation need in Navigation, Efficiency, and Safety Systems. Such uses include RNAV (Area Navigation), RNP (Precision RNAV), FANS (Future Air Navigation System), Surface Moving Map, and Terrain and Aircraft Avoidance systems. Any loss of these technologies due to an inaccurate or unavailable GPS signal would result in significant increases of block time and fuel burn, and a negative impact to the safety of our operation.

LightSquared claims that filter techniques and systems should be able to mitigate the known interference. Any filter system, if even available or practical, would reduce the GPS signal budget and be very costly for us to retrofit into our fleet. We have estimated the cost of modification and replacement of our GPS receivers to be $50,000-$100,000 per aircraft ? for a staggering total of $70 Million just for our mainline fleet. We should not be expected to solve those issues and incur that expense to fix a problem that we did not create, nor was envisioned by us, the manufacturers, and the FAA.

As a typical commercial operator, we, like our counterparts, are committed to GPS. There is no path to take forward without a stable and secure GPS signal environment. As a result, the federal government cannot allow any aspect of GPS use to be jeopardized. The stakes are too high for our passengers, shippers, and communities that rely on our service, our employees, and federal taxpayers who have invested so heavily in the transformation to a satellite-based air traffic management.

It is a wholesale incursion into the GPS spectrum that the recently completed evaluations of LightSquared?s application describe. As the Aviation Sub-team concluded in the Final Report

?[for] the originally defined LightSquared spectrum deployment scenarios, GPS-based operations are expected to be unavailable over entire regions of the country at any normal operational aircraft altitude.?

The RTCA also stated in its report

?[t]he impact of a LightSquared terrestrial base station upper channel spectrum deployment is expected to be complete loss of GPS receiver function. Because of the size of the single-city station deployment, GPS-based operations below about 2000 feet will be unavailable over a large radius from the metro deployment center (assuming no other metro deployments are nearby). Given the situation in the high altitude U.S. East Coast scenario, GPS-based operations will likely be unavailable over a whole region at any normal aircraft altitude.?

RTCA reached the conclusion: ?From an aviation perspective, LightSquared upper channel operation should not be allowed.? We share that conclusion.

We do not support allowing the lower 10 MHz channel proposal to go forward. As the Final Report stated ?[c]ompatibility of aviation GPS operations with a single lower 10 MHz channel could not be determined definitively without additional study.? Additionally, early testing and physics has shown that transmissions in the lower 10 MHz channel do indeed create interference issues.

All of these items, in conjunction with the myriad of other reports, tests, and unknown issues should logically conclude that this proposed application not be allowed to move forward under any circumstance.

In our opinion, the LightSquared proposal cannot be allowed to proceed because of the harm it will cause to the passengers, employees, and operations of United Airlines.